

REMARKS/ARGUMENTS

The Applicants have carefully considered this application in connection with the Examiner's Action and respectfully request reconsideration of this application in view of the following remarks.

The Applicants originally submitted Claims 1-30 in the application. Previously, the Applicants amended Claims 1, 6, 8, 10, 17, 24 and 29 and canceled Claims 4-5, 7 and 20-21. Presently, no claims have been amended, canceled nor added. Accordingly, Claims 1-3, 6, 8-19 and 22-30 are currently pending in the application.

I. Rejection of Claims 1-3, 6, 8-10, 14-19, 22-24 and 28 under 35 U.S.C. §103

The Examiner has rejected Claims 1-3, 6, 8-10, 14-19, 22-24 and 28 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,366,688 to Jun ("Jun") in view of U.S. Patent No. 6,535,621 to Fujita ("Fujita"). Independent Claims 1 and 17 currently include the elements of selecting an intensity line profile from the intensity profile and counting a number of defect intensity pixels from the intensity line profile. Jun and Fujita, alone or in combination, fail to teach or suggest these elements.

In contrast to the claimed invention, Jun is directed to a system for detecting contact failures (defects) using a scanning electron microscope. Jun teaches that the image obtained from the scanning electron microscope can be converted to an intensity profile. Jun then teaches that the intensity profile can be used to identify contact failures. While Jun does disclose choosing a vertical or horizontal line along the intensity profile and summing up the intensity values along the line, this teaching is dissimilar to the claimed element of selecting an intensity line profile from the intensity

profile and counting a number of defect intensity pixels from the intensity line profile. Jun specifically states that “[i]ntensity values along the line are summed to determine a total intensity for the line.” (Column 13, lines 5-10). For example, where Jun is summing the values of the intensity readings of the line, the present invention is summing the number of defects of the intensity line profile. Accordingly, where the present invention provides the number of defects, it appears that Jun provides the severity of the defect. These two ideas are quite different from one another. Therefore, Jun does not teach or suggest these claimed elements.

Similar to Jun, Fujita fails to teach or suggest these elements. The Examiner asserts that Fujita discloses a defect integrated process of light and shade defects (Col. 1, lines 8-9), the process having a defective feature-detecting portion 92 that calculates a sum of various features representative of the number of defect pixels (Col. 12, lines 33-39). The Examiner also asserts that Fujita teaches that an average density that corresponds to the number of various defective pixels is measured. Fujita may teach a defective pixel density, however similar to Jun, Fujita fails to teach or suggest counting a number of defect intensity pixels from an intensity line profile.

Accordingly, Jun, individually or in combination with Fujita, fails to teach or suggest the invention recited in independent Claims 1 and 17 and their dependent claims, when considered as a whole. The combination therefore fails to establish a prima facie case of obviousness with respect to independent Claims 1 and 17 and their dependent claims. Claims 1-3, 6, 8-10, 14-19, 22-24 and 28 are therefore not obvious in view of Jun and Fujita.

In view of the foregoing remarks, the cited references do not support the Examiner's rejection of Claims 1-3, 6, 8-10, 14-19, 22-24 and 28 under 35 U.S.C. §103(a). The Applicants therefore respectfully request the Examiner withdraw the rejection.

II. Rejection of Claims 11-13 and 25-27 under 35 U.S.C. §103

The Examiner has rejected Claims 11-13 and 25-27 under 35 U.S.C. §103(a) as being unpatentable over Jun in view of Fujita, and further in view of U.S. Patent No. 5,808,735 to Lee ("Lee"). As established above, independent Claims 1 and 17 currently include the elements of selecting an intensity line profile from the intensity profile and counting a number of defect intensity pixels from the intensity line profile. As also established above, the combination of Jun and Fujita fails to teach or suggest these elements. Lee also fails to teach or suggest these elements, and therefore fails to correct the deficiencies of the combination of Jun and Fujita.

In contrast to the claimed invention, Lee is directed to a method for detecting and characterizing defects on a semiconductor wafer. Lee discloses that the surface of the wafer can be scanned and that a 3-dimensional intensity profile of the surface may then be prepared. The 3-dimensional profile may then be used to detect defects on the wafer. Nevertheless, Lee fails to teach or suggest the claimed elements of selecting an intensity line profile from the intensity profile and counting a number of defect intensity pixels from the intensity line profile.

Accordingly, Jun, individually or in combination with Fujita or Lee, fails to teach or suggest the invention recited in independent Claims 1 and 17 and their dependent claims, when considered as a whole. The combination therefore fails to establish a prima facie case of obviousness with respect to independent Claims 1 and 17 and their dependent claims. Claims 11-13 and 25-27 are therefore not obvious in view of Jun, Fujita and Lee.

In view of the foregoing remarks, the cited references do not support the Examiner's rejection of Claims 11-13 and 25-27 under 35 U.S.C. §103(a). The Applicants therefore respectfully request the Examiner withdraw the rejection.

III. Rejection of Claims 29-30 under 35 U.S.C. §103

The Examiner has rejected Claims 29-30 under 35 U.S.C. §103(a) as being unpatentable over Jun in view of Fujita, and further in view of U.S. Patent No. 5,406,213 to Henley ("Henley"). Independent Claim 29 currently includes the elements of selecting an intensity line profile from the intensity profile and counting a number of defect intensity pixels from the intensity line profile. The combination of Jun and Fujita fails to disclose these elements.

Henley fails to correct the deficiencies of the combination. The Examiner is offering Henley for the sole proposition that the material may be rejected based upon a large number of defects in the material's surface. Without commenting on whether Henley actually teaches what the Examiner asserts, a teaching of rejecting a material based upon finding a large number of defects is quite different from counting a number of defect intensity pixels from the intensity line profile, as currently claimed. Accordingly, Henley also fails to teach or suggest this claimed element.

Accordingly, Jun, individually or in combination with Fujita and Henley, fails to teach or suggest the invention recited in independent Claim 29 and its dependent claims, when considered as a whole. The combination therefore fails to establish a prima facie case of obviousness with respect to independent Claim 29 and its dependent claims. Claims 29-30 are therefore not obvious in view of Jun, Fujita and Henley.

In view of the foregoing remarks, the cited references do not support the Examiner's rejection of Claims 29-30 under 35 U.S.C. §103(a). The Applicants therefore respectfully request the Examiner withdraw the rejection.

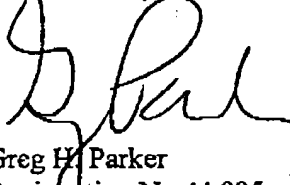
IV. Conclusion

In view of the foregoing amendment and remarks, the Applicants now see all of the Claims currently pending in this application to be in condition for allowance and therefore earnestly solicit a Notice of Allowance for Claims 1-3, 6, 8-19 and 22-30.

The Applicants request the Examiner to telephone the undersigned attorney of record at (972) 480-8800 if such would further or expedite the prosecution of the present application.

Respectfully submitted,

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